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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/727,088
Filing Date: December 02, 2003
Appellant(s): BLAU ET AL.

Katherine A. Hamer
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 22 April 2010 appealing from the Office action mailed 23 November 2009.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

Claims 1-5, 7-16, 18-67, 69-90, and 94-119 are pending.

Claims 29, 30, 66, and 67 were previously withdrawn.

Claims 1-5, 7-16, 18-28, 31-65, 69-90, and 94-119 are rejected.

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being

maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

5,449,041	Galbraith	09-1995
6,019,861	Canterberry et al.	02-2000
5,538,568	Taylor et al.	04-1996
5,882,036	Moore et al.	03-1999
6,481,746	Hinshaw et al.	11-2002
6,116,348	Drakin	09-2000
6,589,375	Knowlton et al.	07-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

3. Claims 1-5, 7-14, 18, 22-25, 57-65, 69, and 72-75, 77, 78, 96-106, and 115-119 are rejected under 35 U.S.C. 103(a) as being unpatentable over Galbraith (US Patent 5,449,041) in view of Canterberry et al. (in the IDS)

Galbraith discloses a fire suppression system comprising a chamber 12 and at least one gas generant 14 housed therein, the gas generant formulated to pyrotechnically

produce an inert gas mixture comprising carbon dioxide in a concentration equal to the concentration pyrotechnically produced by the at least one gas generant. The system also comprises an igniter 32 and a heat management system 38 as recited in claims 2 and 3 and at least one solid as recited in claim 4 (Column 4, line 66). Galbraith also discloses the propellant generating nitrogen gas and a slag. Canterberry et al. teach a gas generating composition comprising a non-azide and ammonium oxalate (which is a non-azole, see column 12, lines 57-66) and formulated to pyrotechnically produce no sodium chloride and an inert gas mixture comprising carbon dioxide in which it would be obvious to one having ordinary skill in the art at the time the invention was made that the level of carbon dioxide produced would be less or equal to the Immediately Harmful to Life or Health concentrations. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device of Galbraith et al. by using a non-azide, non-azole composition to produce an inert gas mixture as has been taught by Canterberry et al. to produce a safe gas mixture. The device will carry out the methods of claims 57-61. The limitations of claims 22, 62, and 72 would have been matters of design choice depending on the systems requirements for a particular application. It is well known that fires are extinguished by reducing an oxygen content in a space. The amount of CO2 as recited in claim 115 would have been a matter of design choice since Canterberry et al. has already taught the amount of CO2 generated does not exceed the desirable levels. The amounts of carbon dioxide produced as recited in claims 96, 97, 118 and 119 would have been matters of design choice.

Regarding claims 97-100, the prior art does recite significant amounts of carbon monoxide, nitric oxide, nitrogen dioxide, or ammonia being produced.

4. Claims 15, 70, 79, 80, 94, and 95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Galbraith in view of Canterberry et al. and further in view of Taylor et al. and Moore et al.

Taylor et al. teaches a gas generant comprising cupric oxide and titanium dioxide and Moore et al. teaches a gas generant comprising hexa(ammine)cobalt-nitrate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the gas generant of Galbraith and Canterberry et al. comprising a combination of the elements as taught by Taylor et al. and Moore et al. since Taylor et al. and Moore et al. teach such elements for forming a gas generant are know in the art and the combination of these elements would properly form a gas generant.

5. Claims 16, 71, and 81-90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Galbraith in view of Canterberry et al. and in further view of Taylor et al. and Hinshaw et al.

Taylor et al. teaches a gas generant comprising cupric oxide and titanium dioxide and Hinshaw et al. teaches a gas generant comprising hexa(ammine)cobalt-nitrate and polyacrylamide. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the gas generant of Galbraith and Canterberry et al. comprising a combination of the elements as taught by Taylor et al. and Hinshaw et al. since Taylor et al. and Hinshaw et al. teach such elements for forming a gas generant are know in the art and the combination of these elements

would properly form a gas generant. The components would re-crystallize upon cooling

6. Claims 19-21 and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Galbraith in view of Canterberry et al. and further in view of Knowlton et al. Knowlton et al. teaches a gas generant comprising a phase change material including lithium nitrate, sodium nitrate, and potassium nitrate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have included into the gas generant of Galbraith and Canterberry et al. a phase change material comprising the various nitrates as recited in order to manage the heat as taught by Knowlton et al.

7. Claims 26-28, 31-45, 48, 49, and 53-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Galbraith in view of Canterberry et al. and in further view of Drakin.

Drakin discloses the heat management comprising an effluent train. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the device of Galbraith and Canterberry et al. to use an effluent train in the heat management system since such arrangements have already been taught by Drakin. The gas generant being configured into at least one pellet would have been an obvious matter of design choice since such a modification would involved a mere change in the shape of an object which is generally recognized as being within the level or ordinary skill in the art. Regarding claim 37, the percentage as recited would have been a matter of design choice in producing a safe concentration of the substances. The limitations of claim 53 would have been matters of design choice depending on the

systems requirements for a particular application. It is well known that fires are extinguished by reducing an oxygen content in a space.

8. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Galbraith in view Canterberry et al. and Drakin and in further view of Taylor et al. and Moore et al.

Taylor et al. teaches a gas generant comprising cupric oxide and titanium dioxide and Moore et al. teaches a gas generant comprising hexa(ammine)cobalt-nitrate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the gas generant of Galbraith, Canterberry et al., and Drakin comprising a combination of the elements as taught by Taylor et al. and Moore et al. since Taylor et al. and Moore et al. teach such elements for forming a gas generant are know in the art and the combination of these elements would properly form a gas generant.

9. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Galbraith in view of Canterberry et al. and Drakin and in further view of Taylor et al. and Hinshaw et al.

Taylor et al. teaches a gas generant comprising cupric oxide and titanium dioxide and Hinshaw et al. teaches a gas generant comprising hexa(ammine)cobalt-nitrate and polyacrylamide. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the gas generant of Galbraith, Canterberry et al., and Drakin comprising a combination of the elements as taught by Taylor et al. and Hinshaw et al. since Taylor et al. and Hinshaw et al. teach such elements for

forming a gas generant are know in the art and the combination of these elements would properly form a gas generant.

10. Claims 50-52 and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Galbraith in view of Canterberry et al. and Drakin and further in view of Knowlton et al.

Knowlton et al. teaches a gas generant comprising a phase change material including lithium nitrate, sodium nitrate, and potassium nitrate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have included into the gas generant of Galbraith, Canterberry et al., and Drakin a phase change material comprising the various nitrates as recited in order to manage the heat as has been taught by Knowlton et al.

11. Claims 107-114 are rejected under 35 U.S.C. 103(a) as being unpatentable over Galbraith in view of Canterberry et al. and in further view of Hinshaw et al.

Hinshaw et al. teaches a gas generant comprising hexa(ammine)cobalt-nitrate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the gas generant of Galbraith and Canterberry et al. comprising a combination of the elements as taught by Taylor et al. and Hinshaw et al. since Taylor et al. and Hinshaw et al. teach such elements for forming a gas generant are know in the art and the combination of these elements would properly form a gas generant. The amount of CO2 produced and the components would have been matters of design choice.

(10) Response to Argument

Regarding claims 1-5, 7-14, 18, 22-25, 96-100, and 115, the combination of Galbraith and Canterberry et al. discloses the limitations of claim1. Galbraith discloses a fire suppression system comprising a chamber 12 and at least one gas generant 14 housed therein, the gas generant formulated to pyrotechnically produce an inert gas mixture and Canterberry et al. teach a gas generating composition comprising a non-azide and ammonium oxalate (which is a non-azole, see column 12, lines 57-66) and formulated to pyrotechnically produce no sodium chloride and an inert gas mixture comprising carbon dioxide in which it would be obvious to one having ordinary skill in the art at the time the invention was made that the level of carbon dioxide produced would be less or equal to the Immediately Harmful to Life or Health concentrations to produce a safe gas mixture. Table II of Canterberry et al. shows results for the gas generating composition samples 1-13 of Table I in which samples 1-13 include 5-aminotetrazole (an azole) as stated by the Appellant, however, samples 14 and 15 does not appear to include 5-aminotetrazole and Table II does not include results of samples 14 and 15. Samples 14 and 15 are therefore considered to be a non-azole gas generant. The Appellant's statements regarding Canterberry et al. teaching an oxamide is irrelevant since the Appellant has not recited oxamide in the claims. However, even if an oxamide-containing composition, upon combustion produces a greater amount of carbon dioxide than is produced by a composition containing 5-aminotetrazole, the amount of carbon dioxide produced would be solely based on the amount of oxamide in the composition. Appellant's argument that the amount of carbon dioxide produced by compositions of Canterberry et al. being higher than the Immediately Harmful to Life or Health

concentration of carbon dioxide is merely speculative since Appellant has not provided any support for this argument. Furthermore, since the "Immediately Harmful to Life or Health" is an industry safety standard, it would be obvious to one having ordinary skill in the art that the compositions of the prior art would not be made to produce carbon dioxide levels above this safety standard. The gas mixture is dispelled by the device of the prior art into a space, and obviously, the carbon dioxide concentration in the gas mixture is substantially equal to the concentration produced by the gas generant, since the carbon dioxide concentration cannot be any more or any less than what the generant can produce. Galbraith also discloses cooling material 38, thus meeting the limitation of a heat management system as recited in claim 3. Galbraith discloses magnesium carbonate as a cooling material, which will produce carbon dioxide when heated. The amounts of carbon dioxide produced by the cooling material 38 along with the carbon dioxide produced by the propellant is merely speculative since Appellant has not provided any support for the total amount of carbon dioxide produced. However, it would be obvious to made the prior device produce amounts of carbon dioxide at or below the safety standard in the industry. Appellant has not defined "man-rated", however, it is understood by the examiner that "man-rated" means that the carbon dioxide concentration is less than or equal to the Immediately Harmful to Life or Health concentration. The abstract of Canterberry et al. states that their compositions are for fire suppression devices and inflating vehicle occupant restraint devices. Regarding Appellant's arguments of the rejection of claims 116 and 117, as stated above, the amounts of carbon dioxide produced by the cooling material 38 along with the carbon

dioxide produced by the propellant is merely speculative since Appellant has not provided any support for the total amount of carbon dioxide produced, and it would be obvious that one would not produce a device that would produce carbon dioxide levels above an industry safety standard. Taylor et al., Moore et al., Hinshaw et al., Drakin, and Knowlton et al. provide teachings of the various dependent claims as stated in the grounds of rejection above.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Davis Hwu/

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